- PATENT -

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Needham et al.	EXAMINER:	Tran, Thien D
SERIAL NO.:	10/027,488	GROUP:	2665
FILED:	12/20/2001	CASE NO.:	CM03852H

ENTITLED: METHOD AND APPARATUS FOR CDMA-DISPATCH SOFT HANDOFF

Motorola, Inc.
Corporate Offices
1303 E. Algonquin Road
Schaumburg, IL 60196
February 17, 2006

Mail Stop APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF

Commissioner:

Pursuant to 37 C.F.R. §41.37, the appellants hereby respectfully submit the following Brief (in triplicate) in support of their appeal.

(1) Real Party in Interest

The real party in interest is Motorola, Inc.

(2) Related Appeals and Interferences

There are no related appeals or interferences known to appellant, the appellant's legal representative, or assignee that will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

Claims 1-22 are pending and presently stand twice and finally rejected and constitute the subject matter of this appeal.

(4) Status of Amendments

No post-final amendments have been submitted.

(5) Summary of Claimed Subject Matter

Claim 1 provides a method for a base site to facilitate CDMA-dispatch soft handoff comprising establishing a first outbound link for a dispatch call, transmitting the dispatch call via the first outbound link to a plurality of mobile stations (MSs), determining a first MS of the plurality of MSs should begin a soft handoff via a second outbound link with an adjacent base site, and subsequent to the step of determining, indicating to at least one of the plurality of MSs

in addition to the first MS the identity of the second outbound link and the identity of the adjacent base site. (FIG. 3, 300; page 8 line 24 – page 9 line 5)

Claim 10 provides a method for a mobile station (MS) to perform a CDMA-dispatch soft handoff comprising receiving a dispatch call via a first outbound link with a base site, receiving an indication of the identity of a second outbound link with an adjacent base site on which the dispatch call can be received and the identity of the adjacent base site, and beginning a soft handoff by simultaneously receiving the dispatch call via the first outbound link and the second outbound link without signaling the base site regarding the soft handoff. (FIG. 4, 400; page 9 lines 6-15)

Claim 16 provides a base site comprising a transmitter and a controller, coupled to the transmitter, which is adapted to establish a first outbound link for a dispatch call, adapted to instruct the transmitter to transmit the dispatch call via the first outbound link to a plurality of mobile stations (MSs), adapted to determining a first MS of the plurality of MSs should begin a soft handoff via a second outbound link with an adjacent base site, and adapted to instruct the transmitter to transmit a signal, subsequent to determining, that indicates to at least one of the plurality of MSs in addition to the first MS the identity of the second outbound link and the identity of the adjacent base site. (FIG. 2, 111; page 5 lines 15-27, page 6 line 21 – page 8 line 23)

Claim 20 provides a mobile station (MS) comprising a receiver and a processor, coupled to the receiver, which is adapted to instruct the receiver to receive a dispatch call via a first outbound link with a base site, adapted to instruct the receiver to receive an indication of the identity of a second outbound link with an adjacent base site on which the dispatch call can be received and the identity of the adjacent base site, and adapted to begin a soft handoff without signaling the base site regarding the soft handoff by instructing the receiver to simultaneously receive the dispatch call via the first outbound link and the second outbound link. (FIG. 2, 120; page 5 lines 28 – page 6 line 5, page 6 line 21 – page 8 line 23)

(6) Grounds of Rejection to be Reviewed on Appeal

Claims 1-22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 99/14972 (hereinafter "'972") in view of Montgolfier (U.S. Patent Application Publication Number 2002/0004371 A1). The appellants dispute these rejections.

(7) Argument

Rejections under 35 U.S.C. §112, first paragraph

None.

Rejections under 35 U.S.C. §112, second paragraph

None.

Rejections under 35 U.S.C. §102

None.

Rejections under 35 U.S.C. §103

Claims 1-9

Argument 1

First, claim 1 provides (underlined language being relevant to the first argument presented below):

> 1. A method for a base site to facilitate CDMA-dispatch soft handoff comprising the steps of:
> establishing a first outbound link for a dispatch call;
> transmitting the dispatch call via the first outbound link to a plurality of mobile stations (MSs);
> determining a first MS of the plurality of MSs should begin a soft handoff via a second outbound link with an adjacent base site; and
> subsequent to the step of determining, indicating to at least one of the plurality of MSs in addition to the first MS the identity of the second outbound link and the identity of the adjacent base site.

In the Final Office Action mailed June 16, 2005 (hereinafter "FOA"), the Examiner cites '972 page 1, lines 15-20 as disclosing the underlined portion of claim 1 above. Including an additional portion for context, '972 page 1, lines 9-20 reads (emphasis added):

> In cellular radio systems, there is known a so-called handover procedure, according to which a data transmission connection between a mobile station and the stationary parts of the system is routed to pass via a new base station, when the connection through the old base station becomes too weak or has too much interference. For instance in a GSM system (Global System for Mobile telecommunications), each base station transmits a signal in a given so-called BCCH channel (Broadcast **Control** Channel), in which case the **mobile stations measure the power of the received BCCH signals and determine on the basis thereof which cell is the most profitable for the quality of the radio connection.** The base stations also inform the mobile stations of the **BCCH frequencies** used in the adjacent cells, so that the mobile station know what frequencies they must listen to **in order to find the BCCH transmissions of the adjacent cells.**

In contrast to transmitting a **control** channel that MSs use to determine which cell is the most profitable for the quality of the radio connection, claim 1 recites "transmitting **the dispatch call** via the first outbound link to a plurality of mobile stations (MSs)" (emphasis added). Thus, the appellants submit that '972, as cited by the Examiner, does not teach the transmission of a dispatch call by the BCCH. Moreover, the appellants cannot find a teaching or suggestion in '972 that the BCCH transmits any type of call, rather the appellants submit that '972 merely suggest that the BCCH is used for broadcasting control information, in contrast to transmitting calls.

In the Advisory Action mailed October 18, 2005 (hereinafter "AA"), the Examiner does not appear to have responded to the applicants' previously submitted arguments to this effect.

Argument 2

Second, claim 1 provides (underlined language being relevant to the second argument presented below):

> 1. A method for a base site to facilitate CDMA-dispatch soft handoff comprising the steps of:
> establishing a first outbound link for a dispatch call;
> transmitting the dispatch call via the first outbound link to a plurality of mobile stations (MSs);
> <u>determining a first MS of the plurality of MSs should begin a soft handoff via a second outbound link with an adjacent base site; and</u>

subsequent to the step of determining, indicating to at least one of the plurality of MSs in addition to the first MS the identity of the second outbound link and the identity of the adjacent base site.

In the FOA and the AA, the Examiner cites '972 page 12 lines 30-35, '972 page 1 lines 15-20, and '972 page 11 lines 10-13 as disclosing the underlined portion of claim 1 above. Including an additional portion for context, '972 page 12, lines 20-35 reads (emphasis added):

> In the above description we have not commented on the question in which parts of the cellular radio system the calculations and estimations required by the system are realised. **The pathloss measurements are most advantageously carried out in the mobile station, because the base station transmit regularly a BCCH signal or a corresponding signal with a known transmission power**, wherefore the pathloss is easily measured on the basis of this. The calculations according to the formulas (2) and (3) are most advantageously made by the base stations, because they have knowledge of the frame structure and of the transmission power used in the different slots thereof. Likewise, it is easy to integrate in the base station a measuring receiver that measures the received interference power required by formula (3) during the different slots of the frame structure. The calculations according to the formulas (4) - (9) can be carried out for instance in the radio network controller, naturally on the precondition that the mobile stations and the base stations signal the measured and calculated information for the radio network controller. **After calculating the estimates according to formula (9), the radio network controller should, when necessary, send the mobile station a command for handover via some base station.**

Including an additional portion for context, '972 page 1, lines 9-20 reads (emphasis added):

> In cellular radio systems, there is known a so-called handover procedure, according to which a data transmission connection between a mobile station and the stationary parts of the system is routed to pass via a new base station, when the connection through the old base station becomes too weak or has too much interference. For instance in a GSM system (Global System for Mobile telecommunications), each base station transmits a signal in a given so-called BCCH channel (Broadcast Control Channel), in which case the **mobile stations measure the power of the received BCCH signals and determine on the basis thereof which cell is the most profitable for the quality of the radio connection. The base stations also inform the mobile stations of the BCCH frequencies used in the adjacent cells, so that the mobile station know what frequencies they must listen to in order to find the BCCH transmissions of the adjacent cells.**

'972 page 11 lines 10-13 reads:

> Multiple function mobile stations can simultaneously maintain several bearers that connect the mobile station to one or several base stations.

Claim 1 recites "**determining a first MS** of the plurality of MSs **should begin a soft handoff via a second outbound link** with an adjacent base site; and **subsequent to the step of determining, indicating** to at least one of the plurality of MSs in addition to the first MS **the identity of the second outbound link and the identity of the adjacent base site**" (emphasis

added). The appellants submit that '972, as cited by the Examiner, does not teach **determining an MS should begin a soft handoff via a second outbound link before indicating** the identity of the second outbound link and **the identity of the adjacent base** site to multiple MSs. Instead, '972 teaches that the base stations inform the mobile stations of the BCCH frequencies used in the adjacent cells, so that the mobile stations know what frequencies they must listen to in order to find the BCCH transmissions of the adjacent cells. '972 also teaches that the mobile stations measure the power of the received BCCH signals and determine on the basis thereof which cell is the most profitable for the quality of the radio connection. '972 page 12, lines 33-35 explicitly refer to sending a command for handover after measurements and calculations are made.

On page 2 of the AA, the Examiner asserts that '972 "teaches handoff from which the MS simultaneously connects to several base stations during the handoff, page 1 lines 15-20 and page 11 lines 10-13, in the environment of third generation UMTS col. 2 lines 15-18 (type of soft handoff)." The appellants disagree, and submit that connections "to several base stations during the handoff" amount to the MS making measurements of BCCH signaling to determine which cell is the most profitable for the quality of the radio connection. See '972 page 1, lines 15-17. As indicated by '972 page 12, lines 20-35, it is after such measurements are performed that the MS is sent a command for handover.

Moreover, the Examiner relies on the passing reference to UMTS on page 2, lines 15-18 of '972 and the Montgolfier reference ([0002], [0005] and Figure 1) for teachings regarding soft handoff. Including an additional portion for context, '972 page 2, lines 9-26 reads (emphasis added):

> A prior art arrangement for handing over an active base station and basc station controller is well suited to so-called second- generation digital cellular radio systems, such as GSM and its expanded version DC S 1800 (Digital Communications System at 1800 MHz), IS-54 (Interim Standard 54) and PDC (Personal Digital Cellular). However, it has been suggested that in the future third- generation digital cellular radio systems, the quality of service offered by the cells for the mobile stations may considerably vary from cell to cell. Suggestions for third-generation systems are **UMTS (Universal Mobile Telecommunications System)** and FPLMTS/IMT-2000 (Future Public Land Mobile Telecommunications System / International Mobile Telecommunications at 2000 MHz). In these plans, cells are divided, on the basis of their size and characteristics, for instance to pico, nano, micro and macro cells, and for example data transmission capacity can be used to describe the quality of service. The highest data transmission capacity is offered by pico cells and to the lowest in macro cells. The cells may be partly or completely superimposed, and there may be different mobile terminal devices, in which case all mobile stations cannot necessarily make use of the quality of service offered by all cells. Moreover, base stations can in different ways support services requiring realtime and non-real-time data transmission.

Montgolfier [0002] reads:

> [0002]The CDMA technique is used in particular in so-called third generation systems such as the universal mobile telecommunication system (UMTS) which offer services at data rates higher than those presently offered by so-called second generation systems, such as the global system for mobile communication (GSM) in particular.

Montgolfier [0005] reads:

> [0005]Another technique commonly used in CDMA systems is the macro- diversity or "soft handover" transmission technique in which a mobile station is connected simultaneously to a plurality of base stations. With suitable techniques for processing and combining various signals received by the mobile station from different base stations (in particular by means of a "rake" type receiver) this makes it possible to improve reception performance and also to minimize the risk of a call being lost during handovers, unlike the "hard" handover technique in which a mobile station is connected at any one instant to only one base station.

However, the appellants fail to see from the Examiner's citations how the soft handoff functionality of Montgolfier would be workably combined with the teachings of '972, particularly since the teachings of '972 are directed towards selecting a "best" base station for the MS to handoff to. See, for example, '972 page 1, lines 4-7, page 12 lines 10-11, page 13 lines 9-15, and page 14 lines 10-13. Thus, the appellants submit that '972, in its focus, conceptually teaches away from incorporating an approach such as the soft handoff of Montgolfier. The appellants submit that '972 and Montgolfier are better viewed as two different approaches to select between rather than to combine. Therefore, without further explanation of how specifically one having ordinary skill in the art would know to combine '972 and Montgolfier or without some teaching or suggestion in the cited art for such a combination, the appellants assert that the Examiner has not provided a sufficient motivation for their combination.

Since the references cited, when considered either independently or in combination, do not teach all of the limitations of independent claim 1, or therefore, all of the limitations of the dependent claims of claim 1, it is asserted that a prima facie case for obviousness has not been established by the Examiner. Furthermore, since a sufficient motivation to combine the references cited has not been shown, it is again asserted that a prima facie case for obviousness has not been established by the Examiner. Therefore, the appellants submit that claims 1-9 are fully patentable over the cited references and request that the Examiner be REVERSED.

Claims 10-15

Argument 1

First, claim 10 provides (underlined language being relevant to the first argument presented below):

> 10. (original) A method for a mobile station (MS) to perform a CDMA-dispatch soft handoff comprising the steps of:
>
> receiving a dispatch call via a first outbound link with a base site;
>
> receiving an indication of the identity of a second outbound link with an adjacent base site on which the dispatch call can be received and the identity of the adjacent base site; and
>
> beginning a soft handoff by simultaneously receiving the dispatch call via the first outbound link and the second outbound link without signaling the base site regarding the soft handoff.

In the FOA, the Examiner cites Figure 8 of '972 as disclosing the underlined portion of claim 10 above. Figure 8 is described on pages 14 and 15 of '972, so there is some uncertainty as to what the Examiner is referring specifically. However, the appellants presume that the Examiner is citing the description of the BCCH. Page 1, lines 14 and 15 of '972 describe the BCCH as a Broadcast Control Channel. In contrast to transmitting a **control** channel that MSs use to determine which cell is the most profitable for the quality of the radio connection, claim 10 recites "receiving **a dispatch call** via a first outbound link with a base site" (emphasis added). Thus, the appellants submit that '972, as cited by the Examiner, does not teach the receiving of a dispatch call via the BCCH. Moreover, the appellants cannot find a teaching or suggestion in '972 that the BCCH is used to transmit any type of call, rather the appellants submit that '972 merely suggest that the BCCH is used for broadcasting control information, in contrast to transmitting calls.

Argument 2

Second, claim 10 provides (underlined language being relevant to the second argument presented below):

> 10. (original) A method for a mobile station (MS) to perform a CDMA-dispatch soft handoff comprising the steps of:
>
> receiving a dispatch call via a first outbound link with a base site;

receiving an indication of the identity of a second outbound link with an adjacent base site on which the dispatch call can be received and the identity of the adjacent base site; and

beginning a soft handoff by simultaneously receiving the dispatch call via the first outbound link and the second outbound link without signaling the base site regarding the soft handoff.

In the FOA, the Examiner cites '972 page 7 lines 15-25 as disclosing the underlined portion of claim 10 above. '972 page 7, lines 15-25 reads:

> Figure 6 illustrates a mobile station 600 which receives signals transmitted by the base stations 601, 602 and 603, particularly signals transmitted on a so-called broadcasting control channel BCCH. Each base station uses in its BCCH transmission a given transmission power which in the illustration is marked with symbol Ptx - BCCHj, where the subindex i obtains values 1, 2 and 3 with respect to the base stations 601, 602 and 603. The signals transmitted by the base stations fade in different manners on their way to the mobile station 600, which receives them at powers Prx - BCCHi, where the subindex i obtains values 1, 2 and 3. The mobile station 600 calculates the pathlosses LiPI per each base station according to the following formula:

However, the appellants note that '972 page 13 line 17 – page 14, line 8 reads (emphasis added):

> Next we shall observe signalling needs according to figure 7 in the exemplary embodiment where the calculations according to the formulas (4) - (9) are carried out by the radio network controller. The mobile station MS performs the received power measurements 701 connected to the pathloss calculations at given intervals, when the pathloss conditions change or after the base station BS has sent a command 702 to this effect. The base station can send said command 702 for example after detecting a change in the transmission power or interference power situation (formulas (2) ja (3)). As a result of the measurement, the mobile station sends the base station and therethrough further to the radio network controller RNC a measuring message 703 containing measurement data of all base stations included in the candidate list. A possible measuring command 702, by which the base station can command the mobile station to carry out the pathloss measurements, contains information as to which base stations are included in the candidate list. When the base station has transmitted the measuring message 703 to the radio network controller, the radio network controller sends, when necessary, to the mobile station a handover command 704, which in a known way contains all the information that the mobile station needs in order to start data transmission with the new base station. **The mobile station acknowledges the handover command by sending the radio network controller an acknowledgement message 705 either via the old or the new base station.**
>
> Figure 8 illustrates signalling in an alternative embodiment, where the mobile station takes the initiative for handover. Via the BCCH channels transmitted by base stations included in the candidate list, the mobile station obtains information 802 of the transmission power and interference power measurements carried out by the base stations. **If the mobile station decides to execute a handover, it sends a message 803 to this effect to the radio network controller** via the base station. The radio network controller sends and acknowledgement message 804, where it either accepts or rejects the handover.

Claim 10 recites "beginning a soft handoff by simultaneously receiving the dispatch call via the first outbound link and the second outbound link **without signaling the base site regarding the soft handoff**" (emphasis added). Thus, in view of the teaching of '972 page 13,

line 17 – page 14, line 8 (quoted above) the appellants submit that '972 teaches away from beginning a soft handoff **without signaling the base site regarding the soft handoff.**

On page 2 of the AA, the Examiner asserts that '972 "teaches handoff from which the MS simultaneously connects to several base stations during the handoff, page 1 lines 15-20 and page 11 lines 10-13, in the environment of third generation UMTS col. 2 lines 15-18 (type of soft handoff)." The appellants disagree, and submit that connections "to several base stations during the handoff" amount to the MS making measurements of BCCH signaling to determine which cell is the most profitable for the quality of the radio connection. See '972 page 1, lines 15-17. As indicated by '972 page 12, lines 20-35, it is after such measurements are performed that the MS is sent a command for handover.

Moreover, the Examiner relies on the passing reference to UMTS on page 2, lines 15-18 of '972 and the Montgolfier reference ([0002], [0005] and Figure 1) for teachings regarding soft handoff. Including an additional portion for context, '972 page 2, lines 9-26 reads (emphasis added):

> A prior art arrangement for handing over an active base station and base station controller is well suited to so-called second- generation digital cellular radio systems, such as GSM and its expanded version DC S 1800 (Digital Communications System at 1800 MHz), IS-54 (Interim Standard 54) and PDC (Personal Digital Cellular). However, it has been suggested that in the future third- generation digital cellular radio systems, the quality of service offered by the cells for the mobile stations may considerably vary from cell to cell. Suggestions for third-generation systems are **UMTS (Universal Mobile Telecommunications System)** and FPLMTS/IMT-2000 (Future Public Land Mobile Telecommunications System / International Mobile Telecommunications at 2000 MHz). In these plans, cells are divided, on the basis of their size and characteristics, for instance to pico, nano, micro and macro cells, and for example data transmission capacity can be used to describe the quality of service. The highest data transmission capacity is offered by pico cells and to the lowest in macro cells. The cells may be partly or completely superimposed, and there may be different mobile terminal devices, in which case all mobile stations cannot necessarily make use of the quality of service offered by all cells. Moreover, base stations can in different ways support services requiring realtime and non-real-time data transmission.

Montgolfier [0002] reads:

> [0002]The CDMA technique is used in particular in so-called third generation systems such as the universal mobile telecommunication system (UMTS) which offer services at data rates higher than those presently offered by so-called second generation systems, such as the global system for mobile communication (GSM) in particular.

Montgolfier [0005] reads:

> [0005]Another technique commonly used in CDMA systems is the macro- diversity or "soft handover" transmission technique in which a mobile station is connected simultaneously to a plurality of base stations. With suitable techniques for processing and combining various signals received by the mobile station from different base stations (in particular by means of a "rake" type receiver) this makes it possible to improve reception performance and also to minimize the risk of a call being lost during handovers, unlike the "hard" handover technique in which a mobile station is connected at any one instant to only one base station.

However, the appellants fail to see from the Examiner's citations how the soft handoff functionality of Montgolfier would be workably combined with the teachings of '972, particularly since the teachings of '972 are directed towards selecting a "best" base station for the MS to handoff to. See, for example, '972 page 1, lines 4-7, page 12 lines 10-11, page 13 lines 9-15, and page 14 lines 10-13. Thus, the appellants submit that '972, in its focus, conceptually teaches away from incorporating an approach such as the soft handoff of Montgolfier. The appellants submit that '972 and Montgolfier are better viewed as two different approaches to select between rather than to combine. Therefore, without further explanation of how specifically one having ordinary skill in the art would know to combine '972 and Montgolfier or without some teaching or suggestion in the cited art for such a combination, the appellants assert that the Examiner has not provided a sufficient motivation for their combination.

Since the references cited, when considered either independently or in combination, do not teach all of the limitations of independent claim 10, or therefore, all of the limitations of the dependent claims of claim 10, it is asserted that a prima facie case for obviousness has not been established by the Examiner. Furthermore, since a sufficient motivation to combine the references cited has not been shown, it is again asserted that a prima facie case for obviousness has not been established by the Examiner. Therefore, the appellants submit that claims 10-15 are fully patentable over the cited references and request that the Examiner be REVERSED.

Claims 16-19

Argument 1

First, claim 16 provides (underlined language being relevant to the first argument presented below):

> 16. (original) A base site comprising:
> a transmitter; and

a controller, coupled to the transmitter, adapted to establish a first outbound link for a dispatch call, adapted to instruct the transmitter to transmit the dispatch call via the first outbound link to a plurality of mobile stations (MSs), adapted to determining a first MS of the plurality of MSs should begin a soft handoff via a second outbound link with an adjacent base site, and adapted to instruct the transmitter to transmit a signal, subsequent to determining, that indicates to at least one of the plurality of MSs in addition to the first MS the identity of the second outbound link and the identity of the adjacent base site.

In the FOA, the Examiner cites '972 page 1, lines 15-20 as disclosing the underlined portion of claim 16 above. Including an additional portion for context, '972 page 1, lines 9-20 reads (emphasis added):

In cellular radio systems, there is known a so-called handover procedure, according to which a data transmission connection between a mobile station and the stationary parts of the system is routed to pass via a new base station, when the connection through the old base station becomes too weak or has too much interference. For instance in a GSM system (Global System for Mobile telecommunications), each base station transmits a signal in a given so-called BCCH channel (Broadcast **Control** Channel), in which case the **mobile stations measure the power of the received BCCH signals and determine on the basis thereof which cell is the most profitable for the quality of the radio connection.** The base stations also inform the mobile stations of the **BCCH frequencies** used in the adjacent cells, so that the mobile station know what frequencies they must listen to **in order to find the BCCH transmissions of the adjacent cells.**

In contrast to transmitting a **control** channel that MSs use to determine which cell is the most profitable for the quality of the radio connection, claim 16 recites "adapted to instruct the transmitter to transmit **the dispatch call** via the first outbound link to a plurality of mobile stations (MSs)" (emphasis added). Thus, the appellants submit that '972, as cited by the Examiner, does not teach instructing the transmitter to transmit a dispatch call by the BCCH. Moreover, the appellants cannot find a teaching or suggestion in '972 that the BCCH transmits any type of call, rather the appellants submit that '972 merely suggest that the BCCH is used for broadcasting control information, in contrast to transmitting calls.

In the AA, the Examiner does not appear to have responded to the applicants' previously submitted arguments to this effect.

Argument 2

Second, claim 16 provides (underlined language being relevant to the second argument presented below):

16. (original) A base site comprising:

a transmitter; and

a controller, coupled to the transmitter, adapted to establish a first outbound link for a dispatch call, adapted to instruct the transmitter to transmit the dispatch call via the first outbound link to a plurality of mobile stations (MSs), adapted to determining a first MS of the plurality of MSs should begin a soft handoff via a second outbound link with an adjacent base site, and adapted to instruct the transmitter to transmit a signal, subsequent to determining, that indicates to at least one of the plurality of MSs in addition to the first MS the identity of the second outbound link and the identity of the adjacent base site.

In the FOA and the AA, the Examiner cites '972 page 12 lines 30-35, '972 page 1 lines 15-20, and '972 page 11 lines 10-13 as disclosing the underlined portion of claim 16 above. Including an additional portion for context, '972 page 12, lines 20-35 reads (emphasis added):

> In the above description we have not commented on the question in which parts of the cellular radio system the calculations and estimations required by the system are realised. **The pathloss measurements are most advantageously carried out in the mobile station, because the base station transmit regularly a BCCH signal or a corresponding signal with a known transmission power,** wherefore the pathloss is easily measured on the basis of this. The calculations according to the formulas (2) and (3) are most advantageously made by the base stations, because they have knowledge of the frame structure and of the transmission power used in the different slots thereof. Likewise, it is easy to integrate in the base station a measuring receiver that measures the received interference power required by formula (3) during the different slots of the frame structure. The calculations according to the formulas (4) - (9) can be carried out for instance in the radio network controller, naturally on the precondition that the mobile stations and the base stations signal the measured and calculated information for the radio network controller. **After calculating the estimates according to formula (9), the radio network controller should, when necessary, send the mobile station a command for handover via some base station.**

Including an additional portion for context, '972 page 1, lines 9-20 reads (emphasis added):

> In cellular radio systems, there is known a so-called handover procedure, according to which a data transmission connection between a mobile station and the stationary parts of the system is routed to pass via a new base station, when the connection through the old base station becomes too weak or has too much interference. For instance in a GSM system (Global System for Mobile telecommunications), each base station transmits a signal in a given so-called BCCH channel (Broadcast Control Channel), in which case **the mobile stations measure the power of the received BCCH signals and determine on the basis thereof which cell is the most profitable for the quality of the radio connection. The base stations also inform the mobile stations of the BCCH frequencies used in the adjacent cells, so that the mobile station know what frequencies they must listen to in order to find the BCCH transmissions of the adjacent cells.**

'972 page 11 lines 10-13 reads:

> Multiple function mobile stations can simultaneously maintain several bearers that connect the mobile

station to one or several base stations.

Claim 16 recites "adapted to **determining a first MS** of the plurality of MSs **should begin a soft handoff via a second outbound link** with an adjacent base site, and adapted to instruct the transmitter to **transmit a signal, subsequent to determining, that indicates** to at least one of the plurality of MSs in addition to the first MS **the identity of the second outbound link and the identity of the adjacent base site**" (emphasis added). The appellants submit that '972, as cited by the Examiner, does not teach **determining an MS should begin a soft handoff via a second outbound link before indicating** the identity of the second outbound link and **the identity of the adjacent base** site to multiple MSs. Instead, '972 teaches that the base stations inform the mobile stations of the BCCH frequencies used in the adjacent cells, so that the mobile stations know what frequencies they must listen to in order to find the BCCH transmissions of the adjacent cells. '972 also teaches that the mobile stations measure the power of the received BCCH signals and determine on the basis thereof which cell is the most profitable for the quality of the radio connection. '972 page 12, lines 33-35 explicitly refer to sending a command for handover after measurements and calculations are made.

On page 2 of the AA, the Examiner asserts that '972 "teaches handoff from which the MS simultaneously connects to several base stations during the handoff, page 1 lines 15-20 and page 11 lines 10-13, in the environment of third generation UMTS col. 2 lines 15-18 (type of soft handoff)." The appellants disagree, and submit that connections "to several base stations during the handoff" amount to the MS making measurements of BCCH signaling to determine which cell is the most profitable for the quality of the radio connection. See '972 page 1, lines 15-17. As indicated by '972 page 12, lines 20-35, it is after such measurements are performed that the MS is sent a command for handover.

Moreover, the Examiner relies on the passing reference to UMTS on page 2, lines 15-18 of '972 and the Montgolfier reference ([0002], [0005] and Figure 1) for teachings regarding soft handoff. Including an additional portion for context, '972 page 2, lines 9-26 reads (emphasis added):

> A prior art arrangement for handing over an active base station and base station controller is well suited to so-called second- generation digital cellular radio systems, such as GSM and its expanded version DC S 1800 (Digital Communications System at 1800 MHz), IS-54 (Interim Standard 54) and PDC (Personal Digital Cellular). However, it has been suggested that in the future third- generation digital cellular radio

> systems, the quality of service offered by the cells for the mobile stations may considerably vary from cell to cell. Suggestions for third-generation systems are **UMTS (Universal Mobile Telecommunications** System) and FPLMTS/IMT-2000 (Future Public Land Mobile Telecommunications System / International Mobile Telecommunications at 2000 MHz). In these plans, cells are divided, on the basis of their size and characteristics, for instance to pico, nano, micro and macro cells, and for example data transmission capacity can be used to describe the quality of service. The highest data transmission capacity is offered by pico cells and to the lowest in macro cells. The cells may be partly or completely superimposed, and there may be different mobile terminal devices, in which case all mobile stations cannot necessarily make use of the quality of service offered by all cells. Moreover, base stations can in different ways support services requiring realtime and non-real-time data transmission.

Montgolfier [0002] reads:

> [0002]The CDMA technique is used in particular in so-called third generation systems such as the universal mobile telecommunication system (UMTS) which offer services at data rates higher than those presently offered by so-called second generation systems, such as the global system for mobile communication (GSM) in particular.

Montgolfier [0005] reads:

> [0005]Another technique commonly used in CDMA systems is the macro- diversity or "soft handover" transmission technique in which a mobile station is connected simultaneously to a plurality of base stations. With suitable techniques for processing and combining various signals received by the mobile station from different base stations (in particular by means of a "rake" type receiver) this makes it possible to improve reception performance and also to minimize the risk of a call being lost during handovers, unlike the "hard" handover technique in which a mobile station is connected at any one instant to only one base station.

However, the appellants fail to see from the Examiner's citations how the soft handoff functionality of Montgolfier would be workably combined with the teachings of '972, particularly since the teachings of '972 are directed towards selecting a "best" base station for the MS to handoff to. See, for example, '972 page 1, lines 4-7, page 12 lines 10-11, page 13 lines 9-15, and page 14 lines 10-13. Thus, the appellants submit that '972, in its focus, conceptually teaches away from incorporating an approach such as the soft handoff of Montgolfier. The appellants submit that '972 and Montgolfier are better viewed as two different approaches to select between rather than to combine. Therefore, without further explanation of how specifically one having ordinary skill in the art would know to combine '972 and Montgolfier or without some teaching or suggestion in the cited art for such a combination, the appellants assert that the Examiner has not provided a sufficient motivation for their combination.

Since the references cited, when considered either independently or in combination, do not teach all of the limitations of independent claim 16, or therefore, all of the limitations of the

dependent claims of claim 16, it is asserted that a prima facie case for obviousness has not been established by the Examiner. Furthermore, since a sufficient motivation to combine the references cited has not been shown, it is again asserted that a prima facie case for obviousness has not been established by the Examiner. Therefore, the appellants submit that claims 16-19 are fully patentable over the cited references and request that the Examiner be REVERSED.

Claims 20-22

Argument 1

First, claim 20 provides (underlined language being relevant to the first argument presented below):

> 20. (original) A mobile station (MS) comprising:
>
> a receiver; and
>
> a processor, coupled to the receiver, adapted to instruct the receiver to receive a dispatch call via a first outbound link with a base site, adapted to instruct the receiver to receive an indication of the identity of a second outbound link with an adjacent base site on which the dispatch call can be received and the identity of the adjacent base site, and adapted to begin a soft handoff without signaling the base site regarding the soft handoff by instructing the receiver to simultaneously receive the dispatch call via the first outbound link and the second outbound link.

In the FOA, the Examiner cites Figure 8 of '972 as disclosing the underlined portion of claim 20 above. Figure 8 is described on pages 14 and 15 of '972, so there is some uncertainty as to what the Examiner is referring specifically. However, the appellants presume that the Examiner is citing the description of the BCCH. Page 1, lines 14 and 15 of '972 describe the BCCH as a Broadcast Control Channel. In contrast to transmitting a **control** channel that MSs use to determine which cell is the most profitable for the quality of the radio connection, claim 20 recites "adapted to instruct the receiver to receive **a dispatch call** via a first outbound link with a base site" (emphasis added). Thus, the appellants submit that '972, as cited by the Examiner, does not teach instructing the receiver to receive a dispatch call by the BCCH. Moreover, the appellants cannot find a teaching or suggestion in '972 that the BCCH is used to transmit any type of call, rather the appellants submit that '972 merely suggest that the BCCH is

used for broadcasting control information, in contrast to transmitting calls.

Argument 2

Second, claim 20 provides (underlined language being relevant to the second argument presented below):

> 20. (original) A mobile station (MS) comprising:
>
> a receiver; and
>
> a processor, coupled to the receiver, adapted to instruct the receiver to receive a dispatch call via a first outbound link with a base site, adapted to instruct the receiver to receive an indication of the identity of a second outbound link with an adjacent base site on which the dispatch call can be received and the identity of the adjacent base site, and adapted to begin a soft handoff without signaling the base site regarding the soft handoff by instructing the receiver to simultaneously receive the dispatch call via the first outbound link and the second outbound link.

In the FOA, the Examiner cites Figure 8 as disclosing the underlined portion of claim 20 above. However, the appellants note that '972 page 13 line 17 – page 14, line 8 reads (emphasis added):

> Next we shall observe signalling needs according to figure 7 in the exemplary embodiment where the calculations according to the formulas (4) - (9) are carried out by the radio network controller. The mobile station MS performs the received power measurements 701 connected to the pathloss calculations at given intervals, when the pathloss conditions change or after the base station BS has sent a command 702 to this effect. The base station can send said command 702 for example after detecting a change in the transmission power or interference power situation (formulas (2) ja (3)). As a result of the measurement, the mobile station sends the base station and therethrough further to the radio network controller RNC a measuring message 703 containing measurement data of all base stations included in the candidate list. A possible measuring command 702, by which the base station can command the mobile station to carry out the pathloss measurements, contains information as to which base stations are included in the candidate list. When the base station has transmitted the measuring message 703 to the radio network controller, the radio network controller sends, when necessary, to the mobile station a handover command 704, which in a known way contains all the information that the mobile station needs in order to start data transmission with the new base station. **The mobile station acknowledges the handover command by sending the radio network controller an acknowledgement message 705 either via the old or the new base station.**
>
> Figure 8 illustrates signalling in an alternative embodiment, where the mobile station takes the initiative for handover. Via the BCCH channels transmitted by base stations included in the candidate list, the mobile station obtains information 802 of the transmission power and interference power measurements carried out by the base stations. **If the mobile station decides to execute a handover, it sends a message 803 to this effect to the radio network controller** via the base station. The radio network controller sends and acknowledgement message 804, where it either accepts or rejects the handover.

Claim 20 recites "adapted to begin a soft handoff **without signaling the base site regarding the soft handoff** by instructing the receiver to simultaneously receive the dispatch call via the first outbound link and the second outbound link" (emphasis added). Thus, in view of the teaching of '972 page 13, line 17 – page 14, line 8 (quoted above) the appellants submit that '972 teaches away from beginning a soft handoff **without signaling the base site regarding the soft handoff**.

On page 2 of the AA, the Examiner asserts that '972 "teaches handoff from which the MS simultaneously connects to several base stations during the handoff, page 1 lines 15-20 and page 11 lines 10-13, in the environment of third generation UMTS col. 2 lines 15-18 (type of soft handoff)." The appellants disagree, and submit that connections "to several base stations during the handoff" amount to the MS making measurements of BCCH signaling to determine which cell is the most profitable for the quality of the radio connection. See '972 page 1, lines 15-17. As indicated by '972 page 12, lines 20-35, it is after such measurements are performed that the MS is sent a command for handover.

Moreover, the Examiner relies on the passing reference to UMTS on page 2, lines 15-18 of '972 and the Montgolfier reference ([0002], [0005] and Figure 1) for teachings regarding soft handoff. Including an additional portion for context, '972 page 2, lines 9-26 reads (emphasis added):

> A prior art arrangement for handing over an active base station and base station controller is well suited to so-called second- generation digital cellular radio systems, such as GSM and its expanded version DC S 1800 (Digital Communications System at 1800 MHz), IS-54 (Interim Standard 54) and PDC (Personal Digital Cellular). However, it has been suggested that in the future third- generation digital cellular radio systems, the quality of service offered by the cells for the mobile stations may considerably vary from cell to cell. Suggestions for third-generation systems are **UMTS (Universal Mobile Telecommunications System)** and FPLMTS/IMT-2000 (Future Public Land Mobile Telecommunications System / International Mobile Telecommunications at 2000 MHz). In these plans, cells are divided, on the basis of their size and characteristics, for instance to pico, nano, micro and macro cells, and for example data transmission capacity can be used to describe the quality of service. The highest data transmission capacity is offered by pico cells and to the lowest in macro cells. The cells may be partly or completely superimposed, and there may be different mobile terminal devices, in which case all mobile stations cannot necessarily make use of the quality of service offered by all cells. Moreover, base stations can in different ways support services requiring realtime and non-real-time data transmission.

Montgolfier [0002] reads:

> [0002]The CDMA technique is used in particular in so-called third generation systems such as the universal mobile telecommunication system (UMTS) which offer services at data rates higher than those presently

> offered by so-called second generation systems, such as the global system for mobile communication (GSM) in particular.

Montgolfier [0005] reads:

> [0005]Another technique commonly used in CDMA systems is the macro- diversity or "soft handover" transmission technique in which a mobile station is connected simultaneously to a plurality of base stations. With suitable techniques for processing and combining various signals received by the mobile station from different base stations (in particular by means of a "rake" type receiver) this makes it possible to improve reception performance and also to minimize the risk of a call being lost during handovers, unlike the "hard" handover technique in which a mobile station is connected at any one instant to only one base station.

However, the appellants fail to see from the Examiner's citations how the soft handoff functionality of Montgolfier would be workably combined with the teachings of '972, particularly since the teachings of '972 are directed towards selecting a "best" base station for the MS to handoff to. See, for example, '972 page 1, lines 4-7, page 12 lines 10-11, page 13 lines 9-15, and page 14 lines 10-13. Thus, the appellants submit that '972, in its focus, conceptually teaches away from incorporating an approach such as the soft handoff of Montgolfier. The appellants submit that '972 and Montgolfier are better viewed as two different approaches to select between rather than to combine. Therefore, without further explanation of how specifically one having ordinary skill in the art would know to combine '972 and Montgolfier or without some teaching or suggestion in the cited art for such a combination, the appellants assert that the Examiner has not provided a sufficient motivation for their combination.

Since the references cited, when considered either independently or in combination, do not teach all of the limitations of independent claim 20, or therefore, all of the limitations of the dependent claims of claim 20, it is asserted that a prima facie case for obviousness has not been established by the Examiner. Furthermore, since a sufficient motivation to combine the references cited has not been shown, it is again asserted that a prima facie case for obviousness has not been established by the Examiner. Therefore, the appellants submit that claims 20-22 are fully patentable over the cited references and request that the Examiner be REVERSED.

(8) Conclusion

For the above reasons, the appellants respectfully submit that the rejection of claims 1-22 under 35 U.S.C. § 103(a) as being unpatentable over WO 99/14972 in view of Montgolfier is in error and should be reversed and the claims allowed.

Lastly, please charge any additional fees (including extension of time fees) or credit overpayment to Deposit Account No. **502117 -- Motorola, Inc.**

Respectfully submitted,
M. Needham et al.

By: _____

Jeffrey K. Jacobs
Attorney for Appellant(s)
Registration No. 44,798
Phone No.: 847/576-5562
Fax No.: 847/576-3750

(9) **Claims Appendix**

1. (original) A method for a base site to facilitate CDMA-dispatch soft handoff comprising the steps of:

establishing a first outbound link for a dispatch call;

transmitting the dispatch call via the first outbound link to a plurality of mobile stations (MSs);

determining a first MS of the plurality of MSs should begin a soft handoff via a second outbound link with an adjacent base site; and

subsequent to the step of determining, indicating to at least one of the plurality of MSs in addition to the first MS the identity of the second outbound link and the identity of the adjacent base site.

2. (original) The method of claim 1 further comprising the step of establishing an inbound link with the first MS for the dispatch call.

3. (original) The method of claim 2 wherein the step of determining comprises the step of receiving a request to handoff from the first MS via the inbound link.

4. (original) The method of claim 2 wherein the inbound link comprises a low-rate inbound link used to communicate at least one of forward power control information, soft hand-off information, and reverse power information.

5. (original) The method of claim 1 wherein the first outbound link and the second outbound link each comprises a full-rate CDMA outbound traffic channel.

6. (original) The method of claim 1 wherein the step of indicating comprises the step of signaling in-band on the first outbound link the identity of the second outbound link and the identity of the adjacent base site.

7. (original) The method of claim 1 wherein the step of indicating comprises the step of signaling via a paging channel the identity of the second outbound link and the identity of the adjacent base site.

8. (original) The method of claim 7 wherein the step of signaling via a paging channel comprises the step of transmitting a broadcast page to convey the identity of the second outbound link and the identity of the adjacent base site.

9. (original) The method of claim 1 further comprising the step of indicating the identity of the first MS with the identity of the second outbound link and the identity of the adjacent base site.

10. (original) A method for a mobile station (MS) to perform a CDMA-dispatch soft handoff comprising the steps of:

receiving a dispatch call via a first outbound link with a base site;

receiving an indication of the identity of a second outbound link with an adjacent base site on which the dispatch call can be received and the identity of the adjacent base site; and

beginning a soft handoff by simultaneously receiving the dispatch call via the first outbound link and the second outbound link without signaling the base site regarding the soft handoff.

11. (original) The method of claim 10 wherein the MS does not have an inbound link to the first base site established for the dispatch call when beginning the soft handoff.

12. (original) The method of claim 10 wherein the step of receiving the indication comprises the step of receiving in-band signaling on the first outbound link that conveys the identity of the second outbound link and the adjacent base site.

13. (original) The method of claim 10 wherein the step of receiving the indication comprises the step of receiving via a paging channel the identity of the second outbound link and the adjacent base site.

14. (original) The method of claim 13 wherein the step of receiving the indication comprises the step of receiving a broadcast page that conveys the identity of the second outbound link and the adjacent base site.

15. (original) The method of claim 10 further comprising the step of transmitting a request to establish an inbound link with the adjacent base site for the dispatch call.

16. (original) A base site comprising:

a transmitter; and

a controller, coupled to the transmitter, adapted to establish a first outbound link for a dispatch call, adapted to instruct the transmitter to transmit the dispatch call via the first outbound link to a plurality of mobile stations (MSs), adapted to determining a first MS of the plurality of MSs should begin a soft handoff via a second outbound link with an adjacent base site, and adapted to instruct the transmitter to transmit a signal, subsequent to determining, that indicates to at least one of the plurality of MSs in addition to the first MS the identity of the second outbound link and the identity of the adjacent base site.

17. (original) The base site of claim 16 wherein the controller is further adapted to establish an inbound link with the first MS for the dispatch call and wherein the base site further comprises a receiver adapted to receive a request to handoff from the first MS via the inbound link.

18. (original) The base site of claim 17 wherein the inbound link comprises a low-rate inbound link used to communicate at least one of forward power control information, soft hand-off information, and reverse power information.

19. (original) The base site of claim 16 wherein the first outbound link and the second outbound link each comprises a full-rate CDMA outbound traffic channel.

20. (original) A mobile station (MS) comprising:

a receiver; and

a processor, coupled to the receiver, adapted to instruct the receiver to receive a dispatch call via a first outbound link with a base site, adapted to instruct the receiver to receive an indication of the identity of a second outbound link with an adjacent base site on which the dispatch call can be received and the identity of the adjacent base site, and adapted to begin a soft handoff without signaling the base site regarding the soft handoff by instructing the receiver to simultaneously receive the dispatch call via the first outbound link and the second outbound link.

21. (original) The MS of claim 20 wherein the MS does not have an inbound link to the first base site established for the dispatch call when the MS begins the soft handoff.

22. (original) The MS of claim 20 wherein the MS further comprises a transmitter and wherein the processor is further adapted to instruct the transmitter to transmit a request to establish an inbound link with the adjacent base site for the dispatch call.

(10) Evidence Appendix

Not applicable.

(11) Related Proceeding Appendix

Not applicable.